

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

43 CFR Part 3160

[WO-300-L13100000.FJ0000]

RIN 1004-AE26

Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands.

AGENCY: Bureau of Land Management, Interior.

ACTION: Proposed rule.

SUMMARY: The Bureau of Land Management (BLM) is proposing a rule to regulate hydraulic fracturing on public land and Indian land. The rule would (1) provide disclosure to the public of chemicals used in hydraulic fracturing on public land and Indian land, (2) strengthen regulations related to well-bore integrity, and (3) address issues related to flowback water. This rule is necessary to provide useful information to the public and to assure that hydraulic fracturing is conducted in a way that adequately protects the environment.

DATES: Send your comments on this proposed rule to the BLM on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. The BLM need not consider, or include in the administrative record for the final rule, comments that the BLM receives after the close of the comment period or comments delivered to an address other than those listed below (see ADDRESSES). If you wish to comment on the information collection requirements in this proposed rule, please note that the Office of Management and Budget (OMB) is required to make a decision concerning the collection of information contained in this proposed rule between 30 to 60 days after publication of this document in the Federal Register. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Mail: U.S. Department of the Interior, Director (630), Bureau of Land Management, Mail Stop 2134 LM, 1849 C St., NW, Washington, DC 20240, Attention: 1004–AE26. Personal or messenger delivery: Bureau of Land Management, 20 M Street, SE, Room 2134 LM, Attention: Regulatory Affairs, Washington, DC 20003. Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions at this Website.

Comments on the information collection requirement: Fax: Office of Management and Budget (OMB), Office of Information and Regulatory Affairs, Desk Officer for the Department of the Interior, fax 202-395-5806. Electronic mail: oira_docket@omb.eop.gov. Please indicate “Attention: OMB Control Number 1004-XXXX,” regardless of the method used to submit comments on the information collection burdens. If you submit comments on the information

collection burdens, please provide the BLM with a copy of your comments, at one of the addresses shown above.

FOR FURTHER INFORMATION CONTACT: Steven Wells, Division Chief, Fluid Minerals Division, 202-912-7143 for information regarding the substance of the rule or information about the BLM’s Fluid Minerals Program. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339 to contact the above individual during normal business hours. FIRS is available 24 hours a day, 7 days a week to leave a message or question with the above individual. You will receive a reply during normal business hours.

SUPPLEMENTARY INFORMATION:

Executive Summary

“Hydraulic fracturing,” a process used to stimulate production from oil and gas wells, has been a growing practice in recent years. Public awareness of fracturing has grown as new horizontal drilling technology has allowed increased access to shale oil and gas resources across the country, sometimes in areas that have not previously experienced significant oil and gas development. The extension of the practice has caused public concern about whether fracturing can allow or cause the contamination of underground water sources, whether the chemicals used in fracturing should be disclosed to the public, and whether there is adequate management of well integrity and the “flowback” fluids that return to the surface during and after fracturing operations.

The Bureau of Land Management (BLM) oversees approximately 700 million subsurface acres of Federal mineral estate and 56 million subsurface acres of Indian mineral estate across the United States. The BLM proposes to modernize its management of well stimulation activities, including hydraulic fracturing, to ensure that fracturing operations conducted on the public mineral estate (including split estate where the Federal Government owns the subsurface mineral estate) follow certain best practices, including: (1) the public disclosure of chemicals used in hydraulic fracturing operations on Federal lands; (2) confirmation that wells used in fracturing operations meet appropriate construction standards; and (3) a requirement that operators put in place appropriate plans for managing flowback waters from fracturing operations.

The BLM proposes to apply the same rules and standards to Indian lands so that these lands and communities receive the same level of protection provided for public lands. Most of these requirements in this rule can be satisfied by submitting additional information during the process that the BLM currently applies to operators who are drilling on public or Indian lands. The proposed rule would require that disclosure of the chemicals used in the fracturing process be provided to the BLM after the fracturing operation is completed. This information is intended to be posted on a public web site, and the BLM is working with the Ground Water Protection Council to determine whether the disclosure can be integrated into the existing website known as FracFocus.org.

The BLM has developed the draft with an eye toward improving public awareness and oversight without introducing complicated new procedures or delays in the process of developing oil and gas resources on public and Indian lands. Some states have started requiring similar disclosures

and oversight for oil and gas drilling operations under their own jurisdiction. This proposal seeks to create a consistent oversight and disclosure model that will work in concert with other regulators' requirements while protecting Federal and tribal interests and resources.

The BLM proposes these changes to existing well stimulation oversight partly in response to recommendations put forward by the Secretary of Energy's Energy Advisory Board in 2011. Also, current BLM regulations governing hydraulic fracturing operations on public lands are more than 30 years old and were not written to address modern hydraulic fracturing activities. In preparing this proposed rule, the BLM has received input from members of the public and stakeholders, and has initiated consultation with tribal representatives. The BLM is looking forward to obtaining additional public input and to ongoing tribal consultations regarding the specific proposed provisions that are set forth herein.

The BLM has analyzed the costs and the benefits of this proposed action in an accompanying Regulatory Impact Analysis available in the rulemaking docket. The estimated benefits range from \$12 million to \$50 million per year, with the range being based on the discount rate used for the analysis, and the estimates of the underlying risk reduced, and remediation costs avoided, by the regulation. The estimated costs range from \$37 million to \$44 million per year, and do not vary based on the uncertainty in the underlying risk reduced by the rule. Given the assumptions made about the costs of remediating contamination and the fact that certain benefits were not quantified, the BLM believes that the quantified range of estimated outcomes could underestimate actual net benefits.

I. Public Comment Procedures

- II. Background
- III. Discussion of the Proposed Rule
- IV. Procedural Matters

I. Public Comment Procedures

If you wish to comment, you may submit your comments by any one of several methods: Mail: You may mail comments to U.S. Department of the Interior, Director (630), Bureau of Land Management, Mail Stop 2134LM, 1849 C Street, NW, Washington, DC 20240, Attention: 1004-AE26. Personal or messenger delivery: Bureau of Land Management, 20 M Street, SE, Room 2134 LM, Attention: Regulatory Affairs, Washington, DC 20003. Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions at this Website.

You may submit comments on the information collection burdens directly to the Office of Management and Budget, Office of Information and Regulatory Affairs, Desk Officer for the Department of the Interior, fax 202-395-5806, or oir_a_docket@omb.eop.gov. Please include “Attention: OMB Control Number 1004-XXXX” in your comments. If you submit comments on the information collection burdens, please provide the BLM with a copy of your comments, at one of the addresses shown above.

Please make your comments as specific as possible by confining them to issues directly related to the content of this proposed rule, and explain the basis for your comments. The comments and recommendations that will be most useful and likely to influence agency decisions are:

1. Those supported by quantitative information or studies; and
2. Those that include citations to, and analyses of, the applicable laws and regulations.

The BLM is not obligated to consider or include in the Administrative Record for the rule comments received after the close of the comment period (see **DATES**) or comments delivered to an address other than those listed above (see **ADDRESSES**).

Comments, including names and street addresses of respondents, will be available for public review at the address listed under **ADDRESSES** during regular hours (7:45 a.m. to 4:15 p.m.), Monday through Friday, except holidays.

Before including your address, telephone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

II. Background

Well stimulation techniques, such as hydraulic fracturing, are used by oil and natural gas producers to increase the volumes of oil and natural gas that can be extracted from wells.

Hydraulic fracturing techniques are particularly effective in enhancing oil and gas production

from “shale” gas or oil formations. Until quite recently, shale formations rarely produced oil or gas in commercial quantities because shale does not generally generate flow of hydrocarbons to well bores unless mechanical changes to the properties of the rock can be induced. The development of horizontal drilling, combined with hydraulic fracturing, have made the production of oil and gas from shale possible. Hydraulic fracturing involves the injection of fluid under high pressure to create or enlarge fractures in the reservoir rocks. The fluid that is used in hydraulic fracturing is usually accompanied by proppants, such as particles of sand, that are carried into the newly fractured rock and help keep the fractures open once the pressure from the fracturing operation is released. The proppant-filled fractures become conduits for fluid migration from the reservoir rock to the wellbore and the fluid is subsequently brought to the surface. In addition to the water and sand (which together typically make up 98 to 99 percent of the materials pumped into a well during a fracturing operation), chemical additives are also frequently used. These chemicals can serve many functions in hydraulic fracturing, including limiting the growth of bacteria and preventing corrosion of the well casing. The exact formulation of the chemicals used varies depending on the rock formations, the well, and the requirements of the operator.

The BLM estimates that about 90 percent (approximately 3,400 wells per year) of wells currently drilled on Federal and Indian lands are stimulated using hydraulic fracturing techniques. Over the past 10 years, there have been significant technological advances in horizontal drilling, which is frequently combined with hydraulic fracturing. This combination, together with the discovery that these techniques can release significant quantities of oil and gas from large shale deposits, has led to production from geologic formations in parts of the country that previously did not produce significant oil or gas. The resulting expansion of oil and gas drilling into new parts of

the country as a result of the availability of new horizontal drilling technologies has significantly increased public awareness of hydraulic fracturing and the potential impacts that it may have on water quality and water consumption.

The BLM's existing hydraulic fracturing regulations are found at 43 CFR 3162.3-2. These regulations were established in 1982 and last revised in 1988, long before the latest hydraulic fracturing technologies became widely used. In response to public interest in hydraulic fracturing and in the BLM's regulation of hydraulic fracturing, in particular, the Department of the Interior (Department) held a forum on hydraulic fracturing on November 30, 2010 in Washington, DC, attended by the Secretary of the Interior and more than 130 interested parties. The BLM later hosted public forums in Bismarck, North Dakota on April 20, 2011; Little Rock, Arkansas on April 22, 2011; and Golden, Colorado on April 25, 2011, to collect broad input on the issues surrounding hydraulic fracturing. More than 600 members of the public attended the April forums. Some of the comments frequently heard during these forums included concerns about water quality, water consumption, and a desire for improved environmental safeguards for surface operations. Commenters also strongly encouraged the agency to require public disclosure of the chemicals used in hydraulic fracturing operations on Federal and Indian lands.

Around the time of the BLM's forums, at the President's direction, the Secretary of Energy's Advisory Board convened a Natural Gas Subcommittee (Subcommittee) to evaluate hydraulic fracturing issues. The Subcommittee met with industry, service providers, state and Federal regulators, academics, environmental groups, and many others stakeholders. Initial recommendations were issued by the Subcommittee on August 18, 2011. Among other things, the report recommended that more information be provided to the public, including disclosure of the chemicals used in fracturing fluids. The Subcommittee also recommended the adoption of

progressive standards for wellbore construction and testing. The initial report was followed by a final report that was issued on November 18, 2011. The final report recommended, among other things, that operators engaging in hydraulic fracturing prepare cement bond logs and undertake pressure testing to ensure the integrity of all casings. These reports are available to the public from the Department of Energy's web site at <http://www.shalegas.energy.gov>.

The BLM's proposed rule is consistent with the American Petroleum Institute's (API) guidelines for well construction and well integrity (see API Guidance Document HF 1, Hydraulic Fracturing Operations—Well Construction and Integrity Guidelines, First Edition, October 2009).

Based on the input provided from a broad array of sources, including the individuals who spoke at the BLM's public forums and the recommendations of the Subcommittee, the BLM is proposing to make critical improvements to its regulations for hydraulic fracturing. The proposed regulations would be applied to all wells administered by the BLM, including those on Federal, tribal, and individual Indian trust lands.

Tribal consultation is a critical part of this effort, and the Department is committed to making sure tribal leaders play a significant role as we work together to develop resources on public and Indian lands in a safe and responsible way. The BLM has initiated government-to-government consultation with tribes on this proposal and has offered to hold follow-up consultation meetings with any tribe that desires to have an individual meeting. The BLM held four tribal consultation meetings, to which over 175 tribal entities were invited. These initial consultations were held in Tulsa, Oklahoma on January 10, 2012; in Billings, Montana on January 12, 2012; in Salt Lake

City, Utah on January 17, 2012; and in Farmington, New Mexico on January 19, 2012. Eighty-one tribal members representing 27 tribes attended the meetings. In these sessions, tribal representatives were given a discussion draft of the hydraulic fracturing rule to serve as a basis for substantive dialogue about the hydraulic fracturing rulemaking process. The BLM asked the tribal leaders for their views on how a hydraulic fracturing rule proposal might affect Indian activities, practices, or beliefs if it were to be applied to particular locations on Indian and public lands. A variety of issues were discussed, including applicability of tribal laws, validating water sources, inspection and enforcement, wellbore integrity, and water management, among others. Additional individual consultations with tribal representatives have taken place since that time. One of the outcomes of these meetings is the proposed requirement in this rule that operators certify that operations on tribal lands comply with tribal laws.

The BLM has been and will continue to be proactive about tribal consultation under the Department's newly-formalized Tribal Consultation Policy, which emphasizes trust, respect and shared responsibility in providing tribal governments an expanded role in informing Federal policy that impacts Indian lands. The BLM will continue to consult with tribal leaders throughout the rulemaking process. Responses from tribal representatives will inform the agency's actions in defining the scope of acceptable hydraulic fracturing rule options. Tribal governments, tribal members, and individual Native Americans are also invited to comment directly on this proposed rule through the process described in the Public Comment Procedures section of this document.

Over the past few years, in response to strong public interest, several states—including Colorado, Wyoming, Arkansas, and Texas—have substantially revised their state regulations related to hydraulic fracturing. One of the BLM's key goals in updating its regulations on hydraulic

fracturing is to complement these state efforts by providing a consistent standard across all public and Indian lands. The BLM is also actively working to minimize any duplication between the reporting required for state regulations and for this regulation and to make reported information consistent and easily accessible to the public. For instance, the BLM is working closely with the Ground Water Protection Council and the Interstate Oil and Gas Commission in an effort to integrate the disclosure called for in this rule with the existing website known as FracFocus. The FracFocus.org website is already well established and used by many states. This online database includes information from oil and gas wells in roughly 12 states and includes information from over 206 companies. The BLM understands that the database is in the process of being improved and will in the near future have enhanced search capabilities and allow for easier reporting of information.

The BLM recognizes the efforts of states to regulate hydraulic fracturing and is focused on coordinating closely with individual state governments to avoid duplicative regulatory requirements. The agency has a long history of working cooperatively with state regulators and the BLM often enters into memorandums of understanding or establishes working groups to coordinate state and Federal activities, such as the oil and gas working groups that currently exist in many of our oil and gas states. The BLM is applying the same approach to this effort and will work closely with individual states on the implementation of the proposed regulation. The BLM's intent is to encourage efficiency in the collection of data and the reporting of information. The BLM routinely shares information on oil and gas operations with state regulatory authorities and the BLM will continue to work with individual states to ensure that duplication of efforts is avoided to the extent possible. Since the BLM is looking for all opportunities to avoid duplication of the collection of data and the reporting of information, we

are specifically asking for public comment on how best to avoid duplication of requirements under this proposed rule with existing state requirements.

The BLM acknowledges that some states already have in place rules and regulations that address hydraulic fracturing and that these rules may be either more or less stringent than the provisions in this proposal. In keeping with longstanding practice and consistent with relevant statutory authorities, it is the intention of the BLM to implement on public lands whichever rules, state or Federal, are most protective of Federal lands and resources and the environment.

III. Discussion of the Proposed Rule

The BLM proposes to revise its hydraulic fracturing regulations, found at 43 CFR 3162.3-2, and adding a new section 3162.3-3. Existing section 3162.3-3 would be retained and renumbered.

The Federal Land Policy and Management Act (FLPMA) directs the BLM to manage the public lands so as to prevent unnecessary or undue degradation, and to manage lands using the principles of multiple use and sustained yield. FLPMA declares multiple use to mean, among other things, a combination of balanced and diverse resource uses that takes into account long-term needs of future generations for renewable and non-renewable resources. FLPMA also requires that the public lands be managed in a manner that will protect the quality of their resources, including ecological, environmental, and water resources. The Mineral Leasing Act and the Mineral Leasing Act for Acquired Lands authorize the Secretary to lease Federal oil and gas resources, and to regulate oil and gas operations on those leases, including surface-disturbing activities. The Indian Mineral Leasing Act assigns regulatory authority to the Secretary over Indian oil and gas leases on trust lands (except those excluded by statute). As stewards of the public lands, and as the Secretary's regulator for oil and gas leases on Indian lands, the BLM has

evaluated the increased use of well stimulation practices over the last decade and determined that the existing rules for well stimulation require updating.

The current regulations make a distinction between routine fracture jobs and nonroutine fracture jobs. However, the terms “routine” and “nonroutine” are not defined in 43 CFR 3162.3-2 or anywhere else in BLM regulations, making this distinction functionally difficult to apply and confusing for both the agency and those attempting to comply with the regulations. As previously stated, the regulations are now 30 years old and need to be updated to keep pace with the many changes in technology and current best management practices. As discussed in the background section of this document, the increased use of well stimulation activities over the last decade has also generated concerns among the public about well stimulation and about the chemicals used in hydraulic fracturing. The proposed rule is intended to increase transparency for the public regarding the fluids used in the hydraulic fracturing process, in addition to providing assurances that well bore integrity is maintained throughout the fracturing process and that the fluids that flow back to the surface from hydraulic fracturing operations are properly stored and disposed of or treated.

The following chart explains the major changes between the existing regulation(s) and the proposed regulation(s).

Existing Regulation	Proposed Regulation	Substantive changes
43 CFR 3160.0-5 Onshore oil and Gas	43 CFR 3160.0-5 Onshore oil and Gas	This proposal would replace the current definition of usable water found in 43 CFR

Operations: General Definitions	Operations: General Definitions	3162.5-2(d) and define six other terms used in the oil and gas drilling industry to make the rule clearer and easier to understand. The definitions would be consistent with those used in the BLM's Oil and Gas Onshore Orders and by industry.
43 CFR 3162.3-2(a) Subsequent Well Operations	43 CFR 3162.3-2(a) Subsequent Well Operations	This proposal would remove the phrase "performing nonroutine fracturing jobs."
43 CFR 3162.3-2(b) Subsequent Well Operations	43 CFR 3162.3-2(b) Subsequent Well Operations	This proposal would remove the phrase "routine fracturing or acidizing jobs, or . . ."
No existing regulation	43 CFR 3162.3-3(a) through (j)	This proposal would add provisions addressing well stimulation operations, would require disclosure of well stimulation fluids, and would require approval of well stimulation operations. The proposed rule would also require that mechanical integrity tests be conducted before well stimulation activities are conducted and would require full reporting of the results of the well stimulation activity within thirty days of its

		completion. This proposal would also add a section allowing the authorized officer to grant a variance to specific conditions of these rules if the operator can demonstrate that alternative procedures would meet or exceed the intent of the minimum standards in this rule. This variance language is consistent with that found in the BLM’s Oil and Gas Onshore Orders.
43 CFR 3162.5-2(d) Protection of fresh water and other minerals	43 CFR 3162.5-2(d) Protection of fresh water and other minerals	This proposal removes the definition of usable water from this section. The new definition of usable water would be placed in 43 CFR 3160.0-5.

Section-by-section discussion of proposed changes

As an administrative matter, the proposed rule would amend the authorities section for the BLM’s oil and gas operations management regulations at 43 CFR 3160.0-3 to include FLPMA. Section 310 of FLPMA authorizes the Secretary of the Interior to promulgate regulations to carry out the purposes of FLPMA and other laws applicable to the public lands. See 43 U.S.C. 1740. This amendment would not be a major change and would have no effect on lessees, operators, or the public.

The proposed rule would remove the terms “nonroutine fracturing jobs,” “routine fracturing jobs,” and “acidizing jobs” from 43 CFR 3162.3-2(a) and 43 CFR 3162.3-2(b). It would add a new section, 43 CFR 3162.3-3, for well stimulation activities. In the proposed rule, there would be no distinction drawn between what was previously considered nonroutine or routine well stimulations. Prior approval would be required for well stimulation activities, generally in connection with the prior approval process that already is in place for general well drilling activities through the Application for Permit to Drill (APD) process. Operators also will be required to submit cement bond logs before fracturing operations begin. The running of cement bond logs on surface casing, which is currently an optional practice, would now be required for new wells. Existing wells would require mechanical integrity testing prior to hydraulic fracturing.

The proposed rule would include six new definitions for technical terms used in the proposed rule. These definitions will improve readability and clarity of the regulations.

The proposed rule intends to add the following definitions:

- Annulus means the space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing; sometimes also called the annular space.
- Bradenhead means a heavy, flanged steel fitting connected to the first string of casing that allows suspension of intermediate and production strings of casing, and supplies the means for the annulus to be sealed off.

- Proppant means a granular substance (most commonly sand, sintered bauxite, or ceramic) that is carried in suspension by the fracturing fluid and that serves to keep the cracks open when fracturing fluid is withdrawn after a hydraulic fracture treatment.
- Stimulation fluid means the liquid or gas, and any accompanying solids, used during a treatment of oil and gas wells, such as the water, chemicals, and proppants used in hydraulic fracturing.
- Usable water means water containing up to 10,000 ppm of total dissolved solids.
- Well stimulation means those activities conducted in an individual well bore designed to increase the flow of hydrocarbons from the rock formation to the well bore by modifying the permeability of the reservoir rock. Examples of well stimulation operations are acidizing and hydraulic fracturing.

The proposed rule would delete the definition of “fresh water.” The BLM has maintained a definition of fresh water in its oil and gas operating regulations since 1988. However, in its onshore orders, the BLM has sought to protect all usable waters during drilling operations, not just fresh water. This distinction has led to confusion in the regulations. Usable water includes fresh water and water that is of lower quality than fresh water. The BLM intends to be more protective when it seeks to protect all usable water during drilling operations, not just fresh water. Therefore, the BLM proposes to delete the definition of fresh water.

Revised section 3162.3-2(a) would remove the phrase “perform nonroutine fracturing jobs” from the current 43 CFR 3162.3-2(a). The phrase “routine fracturing jobs or acidizing jobs, or” would also be removed from existing section 3162.3-2(b). Well stimulation activities would be addressed under the new proposed 43 CFR 3162.3-3.

Proposed section 3162.3-3(a) would make it clear that this section applies only to well stimulation activities and that all other injection activities must comply with section 3162.3-2. This language is necessary to make the distinction between well stimulation activities and other well injection activities, such as secondary and tertiary recovery operations.

Proposed section 3162.3-3(b) would require the BLM's approval of all well stimulation activity. For new wells, the operator has the option of applying for the BLM's approval in its application for permit to drill (APD). For wells permitted prior to the effective date of this section or for wells permitted after the effective date of this section, the operator would submit a Sundry Notice and Report on Wells (Form 3160-5) for the well stimulation proposal for the BLM's approval before the operator begins the stimulation activity. This section would supersede and replace existing section 3162.3-2(b) that states that no prior approval is required for routine fracturing. This reference in the existing section would be deleted. Also, an operator must submit a Sundry Notice prior to well stimulation activity if the BLM's previous approval for well stimulation is more than five years old, or if the operator becomes aware of significant new information about the relevant geology, the stimulation operation or technology, or the anticipated impacts to any resource. The five-year period is consistent with common state practices, including those of Montana, Wyoming, and Colorado, which require that operators reconfirm well integrity for fracturing operations through a pressure test every five years.

The BLM understands the time sensitive nature of oil and gas drilling and well completion activities and does not anticipate that the submittal of additional well stimulation-related information with APD applications will impact the timing of the approval of drilling permits.

The BLM believes that the additional incremental information that would be required by this rule

would be reviewed in conjunction with the APD and within the normal APD processing time frame. Also, the BLM anticipates that requests to conduct well stimulation activities on existing wells that have been in service more than five years will be reviewed promptly. The BLM understands that delays in approvals of operations can be costly to operators and the BLM intends to avoid delays whenever possible.

Proposed section 3162.3-3(c)(1) would require a report that includes the geological names, a geological description, and the depth of the top and the bottom of the formation into which well stimulation fluids would be injected. The report is needed so that the BLM may determine the properties of the rock layers and the thickness of the producing formation and identify the confining rocks above and below the zone that would be stimulated.

Proposed section 3162.3-3(c)(2) would require the operator to submit information in the form of a cement bond log, which will help the BLM in its efforts to make sure that water resources are protected. A cement bond log is a tool used to gauge the extent to which water bearing formations are isolated from the casing string. The log is a document that reports the data from a probe of the wellbore that uses sonic technology to detect gaps or voids in the cement and the casing. This log would be used to verify that the operator has taken the necessary precautions to prevent migration of fluids in the annulus from the fracture zone to the usable water horizons. The proposed regulation would allow for the use of other evaluation tools acceptable to the BLM in order to allow the substitution of equally effective tools or procedures. For example, an operator could request a variance from the requirements of proposed section 3162.3-3(c)(2) that it submit cement bond logs to prove that the occurrences of usable water have been isolated to

protect them from contamination. The BLM could grant a variance to allow for the use of logs other than cement bond logs (e.g., slim array sonic tool, ultrasonic imager tool) if it was satisfied that the alternative logs would meet or exceed the objectives of section (c)(2). The BLM recognizes that the cement bond log would not be available prior to drilling a well. Therefore, when the operator takes advantage of the option to submit its well stimulation information as part of its APD, the cement bond log would be required after approval of the permit to drill and prior to commencing well stimulation activities. Many operators routinely perform cement bond logs for the zones of interest, so the BLM does not expect this step to be a burden for operators. The best available means for the BLM to help ensure that well stimulation activities do not contaminate aquifers is to require cement bond logs for the cement behind the pipe along all areas intersecting useable water, including running cement bond logs on the surface casing.

Proposed section 3162.3-3(c)(3) would require reporting of the measured depth to the perforations in the casing and uncased hole intervals (open hole). This proposed section would also require the operator to disclose specific information about the water source to be used in the fracturing operation, including the location of the water that would be used as the base fluid. The BLM needs this information to determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands. This section would also require the operator to disclose the type of materials (proppants) that would be injected into the fractures to keep them open and the anticipated pressures to be used in the well stimulation operation.

Proposed section 3162.3-3(c)(4), consistent with protecting public health and safety and preventing unnecessary or undue degradation to the public lands, would require operators to

certify in writing that they have complied with all applicable Federal, tribal, state, and local laws, rules, and regulations pertaining to proposed stimulation fluids. The BLM will use this information to make an informed decision on the proposed action. This section also would require the operator to certify that it has complied with all necessary permit and notice requirements. The BLM acknowledges that other Federal, state, tribal, and local agencies may have regulatory requirements that would apply to chemical handling, injecting fluids into the subsurface, and the protection of groundwater. It remains the responsibility of the operator to be aware of and comply with these regulatory requirements. The BLM will rely on the operator's certification that it has complied with all of the laws and regulations that apply to its operation.

Proposed section 3162.3-3(c)(5) would require the operator to submit a detailed description of the well stimulation engineering design to the BLM for approval. This information is needed in order for the BLM to be able to verify that the proposed engineering design is adequate for safely conducting the proposed well stimulation.

Proposed section 3162.3-3(c)(5)(i) would require the operator to submit to the BLM an estimate of the total volume of fluid to be used in the stimulation.

Proposed section 3162.3-3(c)(5)(ii) would require the operator to submit to the BLM a description of the range of the surface treating pressures anticipated for the stimulation. This information is needed by the BLM to verify that the maximum wellbore design burst pressure will not be exceeded at any stage of the well stimulation operation.

Proposed section 3162.3-3(c)(5)(iii) would require the operator to submit to the BLM the proposed maximum anticipated injection pressure for the stimulation. This information is needed by the BLM to verify that the maximum allowable injection pressure will not be exceeded at any stage of the well stimulation operation.

Proposed section 3162.3-3(c)(5)(iv) would require the operator to submit to the BLM the estimated or calculated fracture length and height anticipated as a result of the stimulation, so that the BLM can verify that the intended effects of the well stimulation operation will remain confined to the petroleum-bearing rock layers and will not have unintended consequences on other rock layers, such as aquifers.

Proposed section 3162.3-3(c)(6) would require the operator to provide information pertaining to the handling of recovered fluids that will be used for the stimulation activities for approval. This information is being requested so that the BLM has all necessary information regarding chemicals being used in the event that the information is needed to help protect health and safety or to prevent unnecessary or undue degradation of the public lands.

Proposed section 3162.3-3(c)(6)(i) would require the operator to submit to the BLM an estimate of the volume of fluid to be recovered during flow back, swabbing, and recovery from production facility vessels. This information is required to ensure that the facilities needed to process or contain the estimated volume of fluid will be available on location.

Proposed section 3162.3-3(c)(6)(ii) would require the operator to submit to the BLM the proposed methods of managing the recovered fluids. This information is needed to ensure that the handling methods will adequately protect of public health and safety.

Proposed section 3162.3-3(c)(6)(iii) would require the operator to submit to the BLM a description of the proposed disposal method of the recovered fluids. This is currently required by existing BLM regulations (i.e., Onshore Order Number 7, Disposal of Produced Water, (58 FR 47354). This information is requested so that the BLM has all necessary information regarding disposal of chemicals used in the event it is needed to protect the environment and human health and safety and to prevent unnecessary or undue degradation of the public lands. The BLM specifically requests comments on whether the operator should be required to submit as part of the Sundry Notice application additional information about how it will dispose of waste streams not specifically addressed in this proposal.

Proposed section 3162.3-3(c)(7) would require the operator to provide, at the request of the BLM, additional information pertaining to any facet of the well stimulation proposal. For example, the BLM may require new or different tests or logs in cases where the original information submitted was inadequate, out of date, or incomplete. Any new information that the BLM may request will be limited to information necessary for the BLM to ensure that operations are consistent with applicable laws and regulation. Such information may include, but is not limited to, tabular or graphical results of a mechanical integrity test, the results of logs run, the results of tests showing the total dissolved solids in water proposed to be used as the base fluid, and the name of the contractor performing the stimulation. This provision would allow the BLM

to obtain additional information about the proposed well stimulation activities. For example, after initial cementing activities, an operator may be asked to perforate the well casing and squeeze cement into the areas with inadequate cement bonding. In this case, the BLM may ask for additional information to show that the corrective action was successful and to ensure that the corrective work addressed any cement bonding deficiencies. The BLM wants to ensure that any additional information requested under this provision is the least burdensome to operators as possible while still accomplishing the goal of protecting the public lands and resources; therefore, the BLM is specifically requesting public comment on how this may be best achieved.

Proposed section 3162.3-3(d) would require the operator to perform a successful mechanical integrity test before beginning well stimulation operations. This requirement is necessary to help ensure the integrity of the wellbore under anticipated maximum pressures during well stimulation operations.

Proposed section 3162.3-3(d)(1) would require the mechanical integrity test to emulate the pressure conditions that would be seen in the proposed stimulation process. This test would show that the casing is strong enough to protect water and other subsurface resources during well stimulation activities.

The proposed section 3162.3-3(d)(2) would establish the engineering criteria for using a fracturing string as a technique during well stimulation. The requirement to be 100 feet below the cement top would be imposed to ensure that the production or intermediate casing is surrounded by a competent cement sheath as required by Onshore Order Number 2. The 100

foot requirement is required by some state statutes (e.g., Montana Board of Oil and Gas Conservation, section 36.22.1106, Hydraulic Fracturing) and is a generally accepted standard in the industry. Testing would emulate the pressure conditions that would be seen in the proposed stimulation process in order to ensure that the casing used in the well would be robust enough to handle the pressures.

Proposed section 3162.3-3(d)(3) would require the use of the pressure test time requirement of holding pressure for 30 minutes with no more than 10 percent pressure loss. This requirement is the same standard applied in Onshore Order Number 2, Drilling, (53 FR 46790) Section III.B.h., to confirm the mechanical integrity of the casing. This language does not set a new standard in the BLM's regulations. This test, together with the other proposed requirements, would demonstrate if the casing is strong enough to protect water and other subsurface resources during well stimulation activities. The BLM believes that all of these tests are important to show that reasonable precautions have been taken to ensure the protection of other resources during well stimulation activities.

Proposed section 3162.3-3(e)(1) would require the operator to continuously monitor and record the pressure(s) during the well stimulation operation. The pressure during the stimulation should be contained in the string through which the stimulation is being pumped. Unexpected changes in the monitored and recorded pressure(s) would provide an early indication of the possibility that well integrity has been compromised. This information is needed by the BLM to ensure that well stimulation activities are conducted as designed. This information would also show that stimulation fluids are going to the formation for which they were intended.

Proposed section 3162.3-3(e)(2) would require the operator to orally notify the BLM as soon as possible, but no later than 24 hours following the incident, if during the stimulation operation the annulus pressure increases by more than 500 pounds per square inch over the annulus pressure immediately preceding the stimulation. Within 15 days after the occurrence, the operator must submit a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Report on Wells) to the BLM containing all details pertaining to the incident, including corrective actions taken. This information is needed by the BLM to ensure that stimulation fluids are going into the formation for which they were designed. The BLM also needs to obtain reasonable assurance that other resources are adequately protected. An increase of pressure in the annulus of this amount could indicate that the casing had been breached during well stimulation. Consistent with the BLM's Onshore Order Number 2, Drilling Operations, the operator must repair the casing should a breach occur.

Proposed section 3162.3-3(f) would require the operator to store recovered fluids in tanks or lined pits. This provision grants flexibility for the operator to choose using either a lined pit or a storage tank, whichever the operator determines is the least burdensome or costly option for the storage of flowback fluid. The BLM is proposing this requirement because flowback fluids could contain hydrocarbons from the formation and could also contain additives and other components that might degrade surface and ground water if they were to be released without treatment. This provision is consistent with existing industry practice and American Petroleum Institute (API) recommendations for handling completion fluids (including hydraulic fracturing fluids) (see Section 6.1.6 of API Recommended Practice 51R, Environmental Protection for

Onshore Oil and Gas Production Operations and Leases, First Edition, July 2009). Section 302(b) of the Federal Land Policy and Management Act (43 U.S.C. 1732(b)) states that “In managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the public lands.” In addition, existing BLM regulations at 43 CFR 3161.2 requires that “all operations be conducted in a manner which protects other natural resources and the environmental quality.” Because the use of lined pits or tanks for the storage of recovered fluids are methods that best and reasonably protect the public lands from spills or leaks of recovered fluids, the BLM believes that this provision is in keeping with FLPMA’s mandate to prevent unnecessary or undue degradation of the public lands and the BLM regulation’s requirement to protect environmental quality.

Additional conditions of approval for the handling of flowback water may be placed on the project by the BLM if needed to ensure protection of the environment and other resources. The BLM specifically requests comments on whether this rule should impose additional requirements that would require tanks or lined pits for drilling fluids and any other fluids associated with well stimulation operations. The BLM recognizes the ongoing efforts of states to regulate hydraulic fracturing operations. In implementing this rule, the BLM intends to avoid duplication of existing state requirements and will continue to engage states in cooperative efforts to avoid duplication. Please comment on whether this proposed provision would be duplicative of provisions of state rules and whether it is unnecessarily burdensome.

Proposed section 3162.3-3(g) would require the operator to submit to the BLM the post-operation data on a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Report

on Wells) following the completion of the stimulation activities. The BLM would determine if the well stimulation operation was conducted as approved. This information would be retained by the BLM as part of the individual well record and would be available for use when the well has been depleted and the plugging of the well is being designed.

Proposed section 3162.3-3(g)(1) would require reporting of the actual measured depth to the perforations and open hole interval. This information identifies the producing interval of the well and will be available for use when the well has been depleted and plugging of the well is being designed. Specific information as to the actual source of water, including location of the water being used as the base fluid, is required because the BLM needs the information to determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands.

Proposed section 3162.3-3(g)(2) would require the operator to submit to the BLM the actual total volume of fluid used, including water, proppants, chemicals, and any other fluid used in the stimulation(s) in order for the BLM to maintain a record of the stimulation operation as actually performed.

Proposed section 3162.3-3(g)(3) would require the operator to submit to the BLM a report of the surface pressure at the end of each stage pumped and the rate at which the fluid was pumped at the completion of each stage (i.e., just prior to shutting down the pumps). In addition to the information provided for the individual stages, the pressure values for each flush stage must also

be included. This information is needed by the BLM for it to ensure that the maximum allowable pressure was not exceeded at any stage of the well stimulation operation.

Proposed sections 3162.3-3(g)(4) and (5) would require the operator to identify to the BLM the stimulation fluid by additive trade name and additive purpose, the Chemical Abstracts Service Registry Number, and the percent mass of each ingredient used in the stimulation operation. This information is needed in order for the BLM to maintain a record of the stimulation operation as performed. The information is being required in a format that does not link additives (required by 3162.3-3(g)(4)) to chemical composition of the materials (required by 3162.3-3(g)(5)) to minimize the risk of disclosure of any formulas of additives. This approach is similar to the one the State of Colorado adopted in 2011 (Colorado Oil and Gas Conservation Commission Rule 205A.b2.ix – xii). The BLM intends to place this information on a public web site and is working with the Ground Water Protection Council in an effort to integrate this information into the existing website known as FracFocus.org. The disclosure of the fluids used in hydraulic fracturing would only be required after the fracturing operation has taken place.

Proposed section 3162.3-3(g)(6) would require the actual, estimated, or calculated fracture length and height of the stimulation(s) to be reported to the BLM so that it can verify that the intended effects of the well stimulation operation remain confined to the petroleum-bearing rock layers and will not have unintended consequences on other rock layers or aquifers. This section would require the operator to show that the well stimulation activity was successfully implemented as designed and that the integrity of the well was maintained during stimulation.

Proposed section 3162.3-3(g)(7) would allow the operator flexibility to report online the information listed in proposed sections 3162.3-3(g)(1) through 3162.3-3(g)(6) by attaching a copy of the service company contractor's job log or report, provided the information required is adequately addressed. The operator is responsible for ensuring the accuracy of any information provided to the BLM, even if originally drafted by a third party.

Proposed section 3162.3-3(g)(8), would require operators to certify they have complied with all applicable Federal, state, tribal, and local laws, rules, and regulations pertaining to the stimulation fluids that were actually used during well stimulation operations. The proposed section would also require that the operator certify that it has complied with all necessary permit and notice requirements. This information would be retained by the BLM as part of the well record and be available for use when the well has been depleted and closure of the well is being designed. The information is also needed for the BLM to fulfill its obligation to prevent unnecessary or undue degradation of the public land.

Proposed section 3162.3-3(g)(9) would require operators to certify that wellbore integrity was maintained throughout the operation. This information is needed because the BLM has a mandate to protect human health and safety and prevent contamination of the environment.

Proposed section 3162.3-3(g)(10) would require the operator to provide information describing the handling of the fluids used for the stimulation activities, flow-back fluids, and produced water. The operator must also report how it handled those fluids after operations were completed.

Proposed section 3162.3-3(g)(10)(i) would require the operator to report the volume of fluid recovered during flow back, swabbing, or recovery from production facility vessels.

Proposed section 3162.3-3(g)(10)(ii) would require the operator to report the methods of managing the recovered fluids.

Proposed section 3162.3-3(g)(10)(iii) would require the operator to report the disposal method of the recovered fluids. This section also makes it clear that the fluid disposal methods must be consistent with Onshore Order Number 7, Disposal of Produced Water (58 FR 47353). This information is needed so that the BLM can help protect human health and safety and prevent the contamination of the environment. The BLM also needs to confirm that the disposal methods used are those that were approved and conform to the regulations.

Proposed section 3162.3-3(g)(11) would require the operator to submit documentation and an explanation if the actual operations deviated from the approved plan. Understanding the complexities of well stimulation, the BLM expects there to be slight differences between the proposed plan and the actual operation.

Proposed sections 3162.3-3(h) and (i) would notify the operator of procedures it needs to follow to identify information required to be submitted under this section that the operator believes to be exempt, by law, from public disclosure. If the operator fails to specifically identify information as exempt from disclosure by Federal law, the BLM will release that information. The BLM may

also release information which the operator has marked as exempt if the BLM determines that public release is not prohibited by Federal law after providing the operator with no fewer than 10 business days' notice of the determination. All other information submitted by the operator will become a matter of public record.

Proposed section 3162.3-3(j) would provide the operator with a process for requesting a variance from the minimum standards of this regulation. Variances apply only to operational activities and do not apply to the actual approval process. The proposed regulation would make clear that the BLM has the right to rescind a variance or modify any condition of approval due to changes in Federal law, technology, regulation, field operations, noncompliance, or other reasons. The BLM must make a determination that the variance request meets or exceeds the objectives of the regulation. For example, an operator could request a variance from the requirements of proposed section 3162.3-3(c)(2) that it submit cement bond logs to prove that the occurrences of usable water have been isolated to protect them from contamination. The BLM could grant a variance to allow for the use of logs other than cement bond logs if it was satisfied that the alternative logs would meet or exceed the objectives of section (c)(2). This variance provision is consistent with existing BLM regulation such as Onshore Order Number 1 (see section X. of Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Onshore Oil and Gas Order Number 1, Approval of Operations (72 FR 10308, 10337).

Revised section 3162.5-2(d) would remove the references to fresh water and remove the phrase "containing 5,000 ppm or less of dissolved solids." This revision would require the operator to isolate all usable water. This language does not set a new standard in the BLM's regulations.

Since 1988, Onshore Order Number 2, Drilling Operations, (53 FR 46790) Section II.Y. has defined usable water and Onshore Order Number 2, Drilling Operations, Section III.B. has required the operator to “protect and/or isolate all usable water zones.” Section 3162.5(d) was not revised when Onshore Order Number 2, Drilling Operations, was promulgated, which has led to some confusion in implementing and interpreting the regulations.

IV. Procedural Matters

Federal and Indian Oil and Gas Leasing Activity

To understand the context of costs and benefits of the proposed rule, background information concerning the BLM’s leasing of Federal oil and gas, and management of Federal and Indian leases may be helpful and is included here. This discussion is provided to explain the basis for the conclusions related to the procedural matters sections that follow. The BLM Oil and Gas Management program is one of the most important mineral leasing programs in the Federal Government. There were 49,173 Federal oil and gas leases covering 38,463,410 acres at the end of fiscal year (FY) 2011. For FY 2011, there were 90,452 producible and service drill holes and 96,606 producible and service completions on Federal leases.¹

For FY 2011, onshore Federal oil and gas leases produced about 98 million barrels of oil, 2.97 billion Mcf of natural gas, 2.55 billion gallons of natural gas liquids, and approximately \$2.7 billion in royalties. The production value of the oil and gas produced from public lands exceeded \$23 billion. Oil and gas production from Indian leases was almost 20 million barrels

¹ U.S. Department of the Interior, Bureau of Land Management, www.blm.gov, Oil and Gas Statistics.

of oil, 255 million Mcf of natural gas, and 143 million gallons of natural gas liquids, with a production value of \$2.7 billion and generating royalties of \$433 million.

Table 1: Federal and Indian Oil and Gas Production and Royalties, Fiscal Year 2011

	Sales Volume	Sales Value (\$MM)	Royalty (\$MM)
Federal Leases			
Oil (bbl)	97,721,813	\$8,374	\$1,111
Gas (Mcf)	2,974,916,041	\$12,556	\$1,360
NGL (Gal)	2,551,994,725	\$2,474	\$254
Subtotal		\$23,404	\$2,725
Indian Leases			
Oil (bbl)	19,550,536	\$1,571	\$271
Gas (Mcf)	255,401,453	\$950	\$145

Source: ONRR, Federal Onshore Reported Royalty Revenue, Fiscal Year 2011 and American Indian Reported Royalty Revenue, Fiscal Year 2011

Estimating Benefits and Costs

This analysis attempts to capture the potential benefits and costs that would result if the BLM implemented the proposed rule. As such, the current operating environment is the reference point from which the change is measured.

Current regulations require operators conducting a “non-routine” well stimulation operation to submit a Notice of Intent Sundry and all operators, regardless of the type of well stimulation, to submit a Subsequent Report Sundry. The proposed rule would require BLM approval for all hydraulic fracturing events. For each event, operators would obtain the BLM’s approval prior to the event and submit a Subsequent Report Sundry within 30 days of the event. The operator, if it so chooses, may seek approval for the stimulation operation at the same time that it submits the APD. Other information would be required if an incident occurs during a fracturing operation or

if the BLM determines that there is a need for additional information. For example, the BLM may require new or different information in cases where the original information submitted in the Subsequent Report was inadequate or incomplete.

Potential costs and benefits rely on the number of well stimulation events estimated to occur in the future. Those estimates depend on a number of factors, including, but not limited to, future oil and gas prices, the number of applications to drill, the number of wells completed, and the portion of wells that are stimulated. Expected costs and benefits are anticipated to increase in the future because the number of wells drilled and well stimulation activities are expected to increase in the future, considering projected commodities prices and production.

Administrative costs include only the additional burden posed by the requirements. For operators, this burden includes the submission of forms and supporting documentation that are not currently required. The reporting requirements would also pose an additional burden on the BLM, since it would review an additional number of sundry forms and additional information per form. The efficiency of processing applications could also be impacted if operators submit incomplete or inadequate information, thereby requiring additional communication between the BLM and the operators.

The proposed rule seeks to achieve benefits by making more information available to the public about the chemicals injected in well stimulation fluids, while protecting trade secrets and confidential business information. The information that would be submitted to the BLM under this section would generally be made available to the public. The proposed rule, however, would

allow an operator to identify specific information that it believes is protected from disclosure by Federal law, and to substantiate those claims of exemption. Under existing law, the BLM may nonetheless make that information available to the public, but only if it determines that the information is not protected by Federal law, and provides not less than 10 business days notice to the operator before releasing the information.

Furthermore, the disclosure mechanism in the proposed rule would require a table of the additives by trade name and the purpose for which they are included in the well stimulation fluid. It would also require a separate table listing all the chemicals used by the Chemical Abstracts Service Registry Number. This design will inhibit reverse-engineering of specific additives.

Potential costs include those to perform tests or take other actions that might not have been conducted otherwise. Operational costs include the cost of any additional logs, tests, or other requirements needed to prepare all documents required by the proposed rule that are not currently required. Depending on the well and the operator, these tests or other requirements currently may be conducted or practiced pursuant to other permits, general well testing, etc.

New wells, where operators are conducting hydraulic fracturing operations, should already comply with many of the standards provided in this proposed rule, with the exception of running cement bond logs on the surface casing. Typically, an operator will assume that the casing is fully cemented if cement circulates to the surface during the cementing process. However, circulation to the surface does not confirm that there is appropriate or proper bonding. A cement bond log will provide confirmation that there is proper bonding by providing a graphical

representation that proper bonding has occurred. Old vertical wells that are converted to horizontal wells already require a deepening sundry, a separate process that addresses some of the requirements in this proposed rule.

The potential benefits of the proposed regulations include reduced surface and subsurface contamination. The analysis assumes that, absent this regulation, a certain number of well stimulation events may result in contamination and pose a cost to society. The proposed rule is designed to identify potential issues regarding wellbore integrity and the design of the operations, thereby reducing the likelihood of contamination events.

Estimating the benefits of the proposed regulation is uncertain and subject to assumptions about the number of deficiencies, likelihood of contamination if a deficiency was present, and costs of remediation. One way to measure this benefit is by estimating the cost of internalizing the contamination, which for a subsurface event may include restoring a source of drinking water or remediation of an aquifer.

There are other benefits that are difficult to quantify in monetary terms though they exist. The disclosure requirements might encourage operators to use fewer or safer chemicals in the hydraulic fracturing fluid. The public would benefit from increased knowledge about the fluids used. Increased transparency is also likely to benefit scientists, state and Federal agencies, and other organizations that study the potential impacts of hydraulic fracturing operations, and the BLM would have more information with which to make resource management decisions or respond to incidents.

Methodology

This analysis presents costs and benefits expected to occur over the next 10 years, from 2013 to 2022. This period of analysis was chosen because 10 years is the length of the primary lease term on BLM-managed lands. Net benefits are discounted using 7 and 3 percent discount rates. The analysis presents a range of expected outcomes since the number of well stimulation events occurring in the future is highly variable and subject to future conditions.

The proposed regulation is designed to reduce the risk that well stimulation events may pose to the environment. Any contamination event that occurs is expected to require remediation. Since the remediation costs are uncertain, the analysis makes assumptions about remediation costs which may underestimate the true costs of remediation. The analysis assumes two scenarios: a low remediation cost – low environmental risk scenario and a high remediation cost – high environmental risk scenario. The benefits, while representing the value of risk reduction, will underestimate or overestimate the true benefits if the true risk of well stimulation operations varies from the assumptions.

Discounted Present Value

There is a time dimension to estimates of potential benefits and costs. The potential events described, if they occur at all, may be in the distant future. The further in the future the benefits and costs are expected to occur, the smaller the present value associated with the stream of costs and benefits. As such, future costs and benefits must be discounted (the discount factor equals $1/(1+r)^t$ where r is the discount rate and t is time measured in years during which benefits and

costs are expected to occur). The discount factor is then used to convert the stream of costs and benefits into “present discounted values.” When the estimated benefits and costs have been discounted, they can be added to determine the overall value of net benefits.

The OMB’s basic guidance on the appropriate discount rate to use is provided in OMB Circular A-94. The OMB’s Circular A-94 states that a real discount rate of 7 percent should be used as a base-case for regulatory analysis. The OMB considers the 7 percent rate as an estimate of the average before-tax rate of return to private capital in the U.S. economy. It is a broad measure that reflects the returns to real estate and small business capital as well as corporate capital. It approximates the opportunity cost of capital, and it is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector.

OMB Circular A-4 also states that a 3 percent discount rate should be used for regulatory analyses and explains the use of that discount rate as follows: “The effects of regulation do not always fall exclusively or primarily on the allocation of capital. When regulation primarily and directly affects private consumption (e.g., through higher consumer prices for goods and services), a lower discount rate is appropriate. The alternative most often used is sometimes called the ‘social rate of time preference.’ This simply means the rate at which “society” discounts future consumption flows to their present value.”

Uncertainty

The benefits and costs provided in this analysis are indeed estimates and come with uncertainty. Estimated costs and benefits rely on the number of well stimulation events occurring in future

years and those estimates are uncertain. This analysis estimates the number of future well stimulation events using regression models and future projections of commodity prices.

Assuming the number of well stimulation events is known, though administrative costs are more easily estimated, the operational costs required by producers to comply with the regulations are subject to assumptions about the number of wells that would require such expenditures.

Further uncertainty lies in the estimation of benefits and remediation costs. For the purposes of this analysis, a range of assumed average costs of remediating both subsurface and surface contaminations are used. This assumption may be too low or too high in the real world, depending on the location, severity, consequences, duration of the contamination, and if a causal link between the source and contamination can be made.

This analysis does not quantify other benefits that are undoubtedly relevant, such as the benefit that disclosing the components of fracturing fluids will have for public health research and the remediation of contamination events. It is also uncertain what additional benefits, if any, would result from the disclosure requirements, for instance, if companies find safer substitutes for the chemicals in the fracturing fluids.

Results

The analysis estimates the effects of the proposed regulations over a baseline scenario, where no action is taken. The BLM considered an alternative to the proposed regulation which would remove the requirement for operators to use lined pits if they choose to use pits to store hydraulic fracturing fluids.

A summary of the results appears in Table 2 and Table 3, with the entire results available in the full Economic Analysis and Initial Regulatory Flexibility Analysis available at the address listed in the ADDRESSES section of this rule.

Table 2: Annualized Value of Net Benefits of the Proposed Regulations and Alternatives (7% Discount Rate; \$MM)

	Low Remediation Cost/ Low Environmental Risk		High Remediation Cost/ High Environmental Risk	
Proposed Regulations				
Social Benefits	11.70	13.79	42.67	50.27
Costs	37.34	43.99	37.34	43.99
Net Benefits	-25.63	-30.20	5.33	6.28
Alternative 1: No Requirement for Lined Pits				
Social Benefits	0.01	0.02	7.60	8.95
Costs	34.68	40.86	34.68	40.86
Net Benefits	-34.67	-40.84	-27.08	-31.90
Estimated Number of Well Stimulations				
	Low	High	Low	High
Total	31,328	37,015	31,328	37,015
Annual Average	3,133	3,701	3,133	3,701

**Table 3: Annualized Value of Net Benefits of the Proposed Regulations and Alternatives
(3% Discount Rate; \$MM)**

	Low Remediation Cost/ Low Environmental Risk		High Remediation Cost/ High Environmental Risk	
Proposed Regulations				
Social Benefits	11.74	13.85	42.79	50.27
Costs	37.44	44.18	37.44	44.18
Net Benefits	-25.70	-30.33	5.35	6.31
Alternative 1: No Requirement for Lined Pits				
Social Benefits	0.01	0.02	7.62	8.99
Costs	34.77	41.04	34.77	41.04
Net Benefits	-34.76	-41.02	-27.15	-32.04
Estimated Number of Well Stimulations				
	Low	High	Low	High
Total	31,328	37,015	31,328	37,015
Annual Average	3,133	3,701	3,133	3,701

Results for the Proposed Regulations (Preferred Approach)

Benefits: Under the proposed regulations, it is assumed that the regulations would remove much of the risk associated with potential wellbore integrity issues and unlined pits. The change in social benefits from the baseline scenario is positive. If you assume that there is low environmental risk posed by wellbore integrity issues and storage of hydraulic fracturing fluids in unlined pits and the costs of surface and subsurface remediation is low (on the range assumed), then the change in social benefit as a result of the proposed regulation is positive and ranges between \$11.70MM and \$13.79MM per year using a discount rate of 7% and between \$11.74MM and \$13.85MM per year using a discount rate of 3%. If you assume that environmental risks are high and remediation costs are high (on the range assumed), then the

social benefits of the proposed regulation is positive and ranges between \$42.67MM and \$50.27MM per year using a discount rate of 7% and between \$42.79MM and \$50.49MM per year using a discount rate of 3%. Tables 7 and 8 (below) show the annual change in benefits over the baseline.

Note that the figures for the estimated benefits of the proposed rule do not include such benefits as avoiding harm to water users that cannot be compensated by later providing alternative water sources. The increase in information about additives could aid water users when they consider the potential effects of well stimulation operations and constituent chemicals.

Costs: The costs include both costs to the industry and the BLM under this alternative. Costs include operational tests that demonstrate wellbore integrity and those associated with lining open pits in the instances where operators use pits instead of storage tanks. The change in costs over the baseline ranges between \$37.34MM and \$43.99MM per year using a discount rate of 7% and between \$37.44MM and \$44.18MM per year using a discount rate of 3%, assuming low remediation costs and low environmental risks. The change in costs ranges between \$37.34MM and \$43.99MM per year using a discount rate of 7% and between \$37.44MM and \$44.18MM per year using a discount rate of 3%, assuming high remediation costs and high environmental risks. Tables 7 and 8 (below) show the annual change in costs over the baseline.

Net Benefits: The change in net benefits for the proposed regulations varies depending on the amount of environmental risk associated with wellbore integrity issues and unlined pits and the level of remediation costs associated with contamination events. Assuming low remediation costs and low environmental risks, the change in net benefits from the baseline is negative and

ranges from -\$25.63MM and -\$30.20MM per year using a discount rate of 7% and between -\$25.70MM and -\$30.33MM per year using a discount rate of 3%. Assuming high remediation costs and high environmental risks, the change in net benefits is positive and ranges between \$5.33MM and \$6.28MM per year using a discount rate of 7% and between \$5.35MM and \$6.31MM per year using a discount rate of 3%.

Given the assumptions made and the fact that certain benefits were not quantified, the range of estimated outcomes could underestimate the actual net benefits, i.e., where net benefits are estimated to be negative, the net benefits would be greater (or less negative).

This analysis also does not capture the potential benefits associated with the disclosure of fracturing fluids. For example, disclosure might encourage operators to use fewer or safer chemicals in the hydraulic fracturing fluid. The public would benefit from increased knowledge about the fluids used. This transparency is also likely to benefit scientists, state and Federal agencies, and other organizations that study the potential impacts of well stimulation operations. The BLM would be able to make more informed resource decisions and respond effectively to events where environmental resources have been compromised.

Also, the variance language might also enable operators to reduce costs, in which case, these estimates may overestimate the actual costs and underestimate the change in net benefits.

It should be noted that the low cost and risk scenario results in negative net benefits while the high cost and risk scenario results in positive net benefits. The primary difference is not a result

of the administrative or operational costs changing between the scenarios. Instead, the difference is due to the valuation of social benefits. If the assumed risk of contamination is greater and the costs of remediation are higher, then benefits of the proposed rule would be greater and offset the compliance costs.

The annual cost per well stimulation does not vary greatly between the cost and risk scenarios, but the benefits do. The average annual cost per well (including administrative and operational costs) is estimated to be about \$11,833. However, the average annual benefit ranges more widely, between \$3,754 and \$13,688. The uncertainty about risk and damages causes this variability. The net benefit ranges from -\$8,079 to \$1,855 on a per well stimulation basis.

Note that the figures for the estimated benefits of the proposed rule do not include such benefits as avoiding harm to water users that cannot be compensated by later providing alternative water sources. The increase in information about additives could aid water users when they consider the potential effects of well stimulation operations and constituent chemicals.

Economic Impact Analysis and Distributional Assessments

Energy System Impact Analysis

Executive Order 13211 provides that agencies prepare and submit to the Administrator of the Office of Information and Regulatory Affairs (OIRA), OMB, a Statement of Energy Effects for certain actions identified as significant energy actions. Section 4(b) of Executive Order 13211

defines a “significant energy action” as “any action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking: 1)(i) that is a significant regulatory action under Executive Order 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or 2) that is designated by the Administrator of OIRA as a significant energy action.”

This analysis estimates the additional cost burden per well stimulation event and finds that the average burden per stimulation is about \$11,833 in 2013.

The BLM believes that the additional cost per well stimulation resulting from this proposed rule is insignificant when compared with the drilling costs in recent years, the production gains from hydraulically fractured well operations, and the net incomes of entities within the oil and natural gas industries.

Table 4 presents drilling costs per well for a range of wells from 1998 to 2007. The data clearly show that drilling costs increased during this time. Using the estimates for the average burden per well stimulation and the average cost of drilling wells in 2007, the annual costs of this proposed rule represent about 0.3% of the drilling cost of a well.

As such, the proposed regulations are unlikely to have an effect on the investment decisions of firms, and the rule is unlikely to affect the supply, distribution, or use of energy.

Table 4: Per Well Costs of Crude Oil and Natural Gas Wells Drilled

Year	Crude Oil, Natural Gas, and Dry Wells Drilled (Nominal \$)	Crude Oil Wells Drilled (Nominal \$)	Natural Gas Wells Drilled (Nominal \$)
1998	769,100	566,000	815,600
1999	856,100	783,000	798,400
2000	754,600	593,400	756,900
2001	943,200	729,100	896,500
2002	1,054,200	882,800	991,900
2003	1,199,500	1,037,300	1,106,000
2004	1,673,100	1,441,800	1,716,400
2005	1,720,700	1,920,400	1,497,600
2006	2,101,700	2,238,600	1,936,200
2007	4,171,700	4,000,400	3,906,900

Source: Energy Information Administration (2012), “Costs of Crude Oil and Natural Gas Wells Drilled”

Employment Impact Analysis

Executive Order 13563 reaffirms the principles established in Executive Order 12866, but calls for additional consideration of the regulatory impact on employment. It states, “Our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation.” An analysis of employment impacts is a standalone analysis and the impacts should not be included in the estimation of benefits and costs.

This analysis seeks to inform the discussion of labor demand and job impacts by providing an estimate of the employment impacts of the proposed regulations using labor requirements for the additional administration and operational needs.

This proposed rule would require operators who have not already done so to conduct one-time tests on a well or make a one-time installation of a mitigation control feature. In addition, operators would be required to perform administrative tasks related to a one-time event.

Compliance with the operational requirements would shift resources within the industry from the operators to firms providing the services or supplies. For example, the requirement for a cement bond log represents an additional cost to the operator, but a benefit to the company running the log.

In 2013, the BLM estimates that the labor requirements for operators to meet additional administrative and operational needs are estimated to be about 15 to 18 full time equivalents in each of the next three years. According to the U.S. Census Bureau, employment in the related sectors was 257,302 persons in 2007. Note that these impacts are only for the regulated sector. The BLM cannot predict the net national employment impact, i.e., whether the increased employment in the regulated sector comes from previously unemployed workers or is displaces workers actively employed in other sectors.

Another area of interest is the extent to which the financial burden is expected to change operators' investment decisions. If the financial burden is not significant and all other factors are equal, then one would expect operators to maintain existing levels of investment and

employment. As with the results in the earlier discussion, the BLM believes that the proposed rule would result in an additional cost per well stimulation that is small and would not alter the investment or employment decisions of firms. Therefore, considering the labor requirements and those operators would not likely reduce investment, the BLM anticipates an overall net gain in employment in the sectors.

Executive Order 12866, Regulatory Planning and Review

In accordance with the criteria in Executive Order 12866, the Office of Management and Budget has determined that this rule is a significant regulatory action.

The rule will not have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities. However, the rule may raise novel policy issues because of the proposed requirement that operators provide to the BLM information regarding well stimulation activities that they are not currently providing to the BLM.

This proposed rule would not create inconsistencies or otherwise interfere with an action taken or planned by another agency. This proposed rule would not change the relationships of the oil and gas operations with other agencies. These relationships are included in agreements and memoranda of understanding that would not change with this rule. In addition, this proposed rule would not materially affect the budgetary impact of entitlements, grants, loan programs, or

the rights and obligations of their recipients. Please see the discussion of the impacts of the proposed rule as described earlier in this section of the preamble.

Regulatory Flexibility Act

Congress enacted the Regulatory Flexibility Act of 1980 (RFA), as amended, 5 U.S.C. 601–612, to ensure that Government regulations do not unnecessarily or disproportionately burden small entities. The RFA requires a regulatory flexibility analysis if a rule would have a significant economic impact, either detrimental or beneficial, on a substantial number of small entities. For the purposes of this analysis, we will assume that all entities (all lessees and operators) that may be affected by this proposed rule are small entities, even though that is not actually the case.

The proposed rule deals with well stimulation on all Federal and Indian lands (except those excluded by statute). There would be some increased costs associated with the proposed enhanced recordkeeping requirements and some new operational requirements. However, the BLM expects that these costs would be minor in comparison to overall operations costs. Therefore, the BLM has determined under the RFA that the proposed rule would not have a significant economic impact on a substantial number of small entities. Please see the discussion earlier in this section of the preamble for a discussion of the impacts of the rule.

Small Business Regulatory Enforcement Fairness Act

The Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small governmental jurisdictions, or small not-for-profit enterprises.

The BLM reviewed the Small Business Administration (SBA) size standards for small businesses and the number of entities fitting those size standards as reported by the U.S. Census Bureau in the 2007 Economic Census. Using the Economic Census data, the BLM concludes that about 99% of the entities operating in the relevant sectors are small businesses in that they employ fewer than 500 employees. Also, small firms account for 74% of the total value of shipments and receipts for services, 86% of the total cost of supplies, 78% of the total capital expenditures (excluding land and mineral rights), and 67% of the paid employees.

Small entities represent the overwhelming majority of entities operating in the onshore crude oil and natural gas extraction industry. As such, the proposed rule is likely to affect a significant number of small entities. To examine the economic impact of the rule on small entities, the BLM performed a screening analysis for impacts on a sample of expected affected small entities by comparing compliance costs to entity net incomes.

Under the cost and risk scenarios, the average cost per entity in 2013 is estimated to represent between 0.002% and 0.22% of the 2010 net incomes of the sampled companies, depending on

the U.S. Energy Information Administration's Annual Energy Outlook commodity price forecasts. The proportions do not change substantially over the outlook period.

After considering the economic impact of the proposed rule on these small entities, the screening analysis indicates that this proposed rule would not have a significant economic impact on a substantial number of small entities. Please see the discussion earlier in this section of the preamble for a discussion of the impacts of the rule.

Unfunded Mandates Reform Act

This proposed rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for state, local, and tribal governments, in the aggregate, or to the private sector in any one year. Thus, the proposed rule is also not subject to the requirements of Sections 202 or 205 of the Unfunded Mandates Reform Act (UMRA).

This proposed rule is also not subject to the requirements of Section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments; it contains no requirements that apply to such governments nor does it impose obligations upon them.

Executive Order 12630, Governmental Actions and Interference With Constitutionally Protected Property Rights (Takings)

Under Executive Order 12630, the proposed rule would not have significant takings implications. A takings implication assessment is not required. This proposed rule would establish recordkeeping requirements for hydraulic fracturing operations and some additional operational requirements on Federal and Indian lands. All such operations are subject to lease terms which expressly require that subsequent lease activities be conducted in compliance with subsequently adopted Federal laws and regulations. The proposed rule conforms to the terms of those Federal leases and applicable statutes, and as such the proposed rule is not a governmental action capable of interfering with constitutionally protected property rights. Therefore, the proposed rule would not cause a taking of private property or require further discussion of takings implications under this Executive Order.

Executive Order 13352, Facilitation of Cooperative Conservation

Under Executive Order 13352, the BLM has determined that this proposed rule would not impede facilitating cooperative conservation and would take appropriate account of and consider the interests of persons with ownership or other legally recognized interests in land or other natural resources. This rulemaking process will involve Federal, State, local and tribal governments, private for-profit and nonprofit institutions, other nongovernmental entities and individuals in the decision-making. The process would provide that the programs, projects, and activities are consistent with protecting public health and safety.

Executive Order 13132, Federalism

Under Executive Order 13132, this proposed rule would not have significant Federalism effects. A Federalism assessment is not required because the proposed rule would not have a substantial direct effect on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. The proposed rule would not have any effect on any of the items listed. The proposed rule would affect the relationship between operators, lessees, and the BLM, but would not impact states. Therefore, under Executive Order 13132, the BLM has determined that the proposed rule would not have sufficient Federalism implications to warrant preparation of a Federalism Assessment.

Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

Under Executive Order 13175, the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), and 512 Departmental Manual 2, the BLM evaluated possible effects of the proposed rule on federally recognized Indian tribes. The BLM approves proposed operations on all Indian onshore oil and gas leases (except those excluded by statute). Therefore, the proposed rule has the potential to affect Indian tribes. In conformance with the Secretary's policy on tribal consultation, the Bureau of Land Management held four tribal consultation meetings to which over 175 tribal entities were invited. The consultations were held in:

- Tulsa, Oklahoma on January 10, 2012;
- Billings, Montana on January 12, 2012;
- Salt Lake City, Utah on January 17, 2012; and
- Farmington, New Mexico on January 19, 2012.

The purpose of these meetings was to solicit initial feedback and preliminary comments from the tribes. Comments from tribes will be received and consultation will continue as this rulemaking proceeds. To date, the tribes have expressed concerns about the BLM's Inspection and Enforcement program's ability to enforce the terms of this rule; previously plugged and abandoned wells being potential conduits for contamination of ground water; and the operator having to provide documentation that the water used for the fracturing operation was legally acquired. The BLM will further address these concerns during the drafting of the final rule.

Executive Order 12988, Civil Justice Reform

Under Executive Order 12988, the Office of the Solicitor has determined that the proposed rule would not unduly burden the judicial system and meets the requirements of Sections 3(a) and 3(b)(2) of the Order. The Office of the Solicitor has reviewed the proposed rule to eliminate drafting errors and ambiguity. It has been written to minimize litigation, provide clear legal standards for affected conduct rather than general standards, and promote simplification and avoid unnecessary burdens.

Paperwork Reduction Act

The Paperwork Reduction Act (PRA) (44 U.S.C. 3501 – 3521) provides that an agency may not conduct or sponsor, and a person is not required to respond to, a “collection of information,” unless it displays a currently valid control number. Collections of information include requests and requirements that an individual, partnership, or corporation obtain information, and report it to a Federal agency (44 U.S.C. 3502(3); 5 CFR 1320.3(c) and (k)).

In accordance with the PRA, the BLM is inviting public comment on its request that OMB assign a new control number for proposed new uses of Form 3160-5 (Sundry Notices and Reports on Wells). The BLM is proposing that these new uses would replace certain existing uses of Form 3160-5 for well-stimulation operations.

OMB has approved the use of Form 3160-5 under control number 1004-0137, Onshore Oil and Gas Operations (43 CFR part 3160) to collect information on a number of operations, including some well-stimulation operations. Once the BLM is authorized to collect well-stimulation information in accordance with finalized new section 3162.3-3 and a new control number, the BLM will request revision of control number 1004-0137 to:

- Add the new well-stimulation uses and burdens of Form 3160-5 to control number 1004-0137, and
- Remove the existing well-stimulation uses and burdens from the existing approval of Form 3160-5.

The new collection of information would be required to obtain or retain a benefit for the operators of Federal and Indian (except on the Osage Reservation, the Crow Reservation, and certain other areas) onshore oil and gas leases, units, or communitization agreements that include Federal leases. The BLM has requested a 3-year term of approval for the new control number.

The information collection request for this proposed rule has been submitted to OMB for review under 44 U.S.C. 3504(h) of the Paperwork Reduction Act. A copy of the request can be obtained from the BLM by electronic mail request to Barbara Gamble at barbara_gamble@blm.gov or by telephone request to 202-912-7148. The BLM requests comments to:

- Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;
- Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;
- Enhance the quality, utility, and clarity of the information to be collected; and
- Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Comments on the information collection requirements should be sent to both OMB and the BLM as directed in the **ADDRESSES** section of this preamble. OMB is required to make a decision concerning the collection of information contained in this proposed rule between 30 to 60 days after publication of this document in the Federal Register. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Summary of Information Collection Requirements

The proposed rule is intended to increase transparency for the public regarding the fluids and additives used in well stimulation. The proposed provisions that include information collection requirements are amendments to 43 CFR 3162.3-2 new 43 CFR 3162.3-3.

OMB has approved the use of Form 3160-5 under control number 1004-0137 for the operations listed in existing section 3162.3-2. As amended, section 3162.3-2 would no longer include well stimulation jobs (i.e., nonroutine fracturing, routine fracturing, and acidizing) on the list of operations for which prior approval and subsequent reports would be required. Other categories of operations would remain subject to the information collection requirements in section 3162.3-2. Once the BLM is authorized to collect well-stimulation information under new section 3162.3-3 and a new control number, the BLM will request revision of control number 1004-0137 by removing the well-stimulation burdens from the existing approval of Form 3160-5. New section 3162.3-3 would require operators to use Form 3160-5 both to seek prior BLM approval of well stimulation operations, and to submit a report on subsequent actual well stimulation operations. It would also encourage operators to use Form 3160-5 if they want to request a variance from the requirements of new section 3162.3-3.

Request for Prior Approval (i.e., Notice of Intent Sundry)

New section 3162.3-3(b) would require operators to seek and obtain prior approval by the BLM for proposed well stimulation operations. Submission of the information, called a Notice of Intent (NOI) Sundry in the proposed rule, would be required at least 30 days before the date the operator wants to begin well stimulation operations. The information to be included in this Notice of Intent Sundry, and the reasons for requiring it, are listed in the following table:

Proposed Regulation 43 CFR	Proposed Regulatory Text	Rationale
§ 3162.3-3(c)(1)	The geological names, a geological description, and the proposed measured depth of the top and the bottom of the formation into which well stimulation fluids are to be injected.	The BLM would use the information to determine the properties of the rock layers and the thickness of the producing formation, and identify the confining rocks above and below the zone that would be stimulated.
§ 3162.3-3(c)(2)	The proposed measured depths (both top and bottom) of all occurrences of usable water and the Cement Bond Logs (or another log acceptable to the authorized officer) proving that the occurrences of usable water have been isolated to protect them from contamination.	The BLM would use the information to help protect water resources.
§ 3162.3-3(c)(3)	The proposed measured depth of perforations or the open-hole interval, the source and location(s) of the water used in the stimulation fluid or trade name of the base fluid (if other than water), type of proppants, and estimated pump pressures. Information concerning water supply, such as rivers, creeks, springs, lakes, ponds, and wells, which may be shown by quarter-quarter section on a map or plat, or which may be described in writing. The NOI Sundry must also identify the source, access route, and transportation method for all water	The BLM would use the information to determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands.

	anticipated for use in stimulating the well.	
§ 3162.3-3(c)(4)	A certification signed by the operator that the proposed treatment fluid complies with all applicable permitting and notice requirements as well as all applicable Federal, tribal, state, and local laws, rules, and regulations;	The BLM would use the information to make an informed decision on the proposed well stimulation..
§ 3162.3-3(c)(5)	A detailed description of the proposed well stimulation design, including: (i) the estimated total volume of fluid to be used; (ii) The anticipated surface treating pressure range; (iii) The maximum injection treating pressure; and (iv) the estimated or calculated fracture length and fracture height.	The information would enable the BLM to verify that the proposed engineering design is adequate for safely conducting the proposed well stimulation, that the maximum wellbore design burst pressure will not be exceeded at any stage of the well stimulation operations, and that the intended effects of the well stimulation operation will remain confined to the petroleum-bearing rock layers and will not have unintended consequences for other rock layers, such as aquifers.
§ 3162.3-3(c)(6)	The following information concerning the handling of recovered fluids: (i) the estimated volume of fluid to be recovered during flow back, swabbing, and recovery from production facility vessels; (ii) The proposed methods of handling the recovered fluids, including, but not limited to, pit requirements, chemical composition of the	The BLM would use the information to ensure that the facilities needed to process or contain the estimated volume of fluid will be available on location, that the handling methods will adequately ensure protection of public health and safety, and that the BLM has all necessary information regarding disposal of chemicals used,

	fluid, pipeline requirements, holding pond use, re-use for other stimulation activities, or injection; and (iii) The proposed disposal method of the recovered fluids, including, but not limited to, injection, hauling by truck, or transporting by pipeline.	in the event it is needed to protect the environment and human health and safety and to prevent unnecessary or undue degradation of the public lands.
§ 3162.3-3(c)(7)	Additional information, as requested by the authorized officer.	The information would allow the BLM to make an informed decision about the proposed well stimulation if special circumstances exist.

Subsequent Report (i.e., Subsequent Report Sundry Notice)

Within 30 days after the completion of well stimulation operations, section 3162.3-3(f) of the proposed rule would require operators to submit a Subsequent Report Sundry Notice on Form 3160-5 (Sundry Notices and Report on Wells). The information to be included in this Subsequent Report, and the reasons for requiring it, are listed in the following table.

Proposed Regulation 43 CFR	Proposed Regulatory Text	Rationale
3162.3-3(e)(1)	A continuous record of the annulus pressure must be submitted with the required Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells) identified in paragraph (g) of this section.	The BLM would use the information to ensure that well stimulation activities are conducted as designed. The information would also show that stimulation fluids are going to the formation for which they were intended.
3162.3-3(e)(2)	If during the stimulation the annulus pressure increases by more than 500 pounds per square inch as compared to the pressure immediately preceding the stimulation, the operator must orally notify the	The BLM would use the information to ensure that stimulation fluids are going into the formation for which they were designed. The BLM also needs to obtain reasonable assurance that

	authorized officer as soon as practicable, but no later than 24 hours following the incident. Within 15 days after the occurrence, the operator must submit a report containing all details pertaining to the incident, including corrective actions taken, as part of a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells).	other resources are adequately protected.
§ 3162.3-3(g)(1)	The actual measured depth of perforations or the open-hole interval, the source and location(s) of the water used in the stimulation fluid or trade name of base fluid (if other than water), type of proppants, and estimated pump pressures. Information concerning water supply, such as rivers, creeks, springs, lakes, ponds, and wells, which may be shown by quarter-quarter section on a map or plat, or which may be described in writing. It must also identify the source, access route, and transportation method for all water used in stimulating the well.	The BLM would use the information to determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands.
§ 3162.3-3(g)(2)	The actual total volume of the fluid used.	The BLM would use the information to maintain a record of the stimulation operation as actually performed.
§ 3162.3-3(g)(3)	The actual surface pressure and rate at the end of each fluid stage, and the actual flush volume, rate, and final pump pressure.	The BLM would use the information to ensure that the maximum allowable pressure has not been exceeded at any stage of the well stimulation operation.
§ 3162.3-3(g)(4) and (5)	(4) A report (table) that discloses all additives of the	The BLM would use the information to maintain a

	<p>actual stimulation fluid, by additive trade name and purpose (such as, but not limited to, acid, biocide, breaker, brine, corrosion inhibitor, crosslinker, demulsifier, friction reducer, gel, iron control, oxygen scavenger, pH adjusting agent, proppant, scale inhibitor, or surfactant); and</p> <p>(5) A report (table) that discloses the complete chemical makeup of all materials used in the actual stimulation fluid without regard to original source additive (see paragraph (g)(4) of this section). For each chemical, the operator must provide the Chemical Abstracts Service Registry Number as well as the percentage by mass. The percent mass value is the mass value for each component (Mc) divided by the value of the entire fluid mass (Mt) times 100. $(Mc/Mt)*100 =$ percent value. The percent mass values should be for the entire stimulation operation, not for the individual stages.</p>	<p>record of the stimulation operation as performed.</p>
<p>§ 3162.3-3(g)(6)</p>	<p>The actual, estimated, or calculated fracture length and fracture height.</p>	<p>The BLM would use the information to verify that the intended effects of the well stimulation operation remain confined to the petroleum-bearing rock layers and will not have unintended consequences on other rock layers or aquifers.</p>
<p>§ 3162.3-3(g)(7)</p>	<p>The Subsequent Report Sundry Notice (Form 3160-5,</p>	<p>This provision would allow the operator the flexibility to</p>

	<p>Sundry Notices and Reports on Wells) may be completed in whole or in part, as applicable, by attaching the service contractor’s job log or other report, so long as the information required in paragraphs (g)(1) through (g)(6) of this section is complete and readily apparent.</p>	<p>submit a copy of the service company contractor’s job log or other report in lieu of all or part of the data described above, so long as the required information is complete and readily apparent.</p>
<p>§ 3162.3-3(g)(8)</p>	<p>A certification signed by the operator that the treatment fluid used complies with all applicable permitting and notice requirements as well as all applicable Federal, tribal, state, and local laws, rules, and regulations.</p>	<p>The BLM would use the information to help protect public health and safety and obtain the operator’s self-certification of compliance with all necessary permits and notice requirements.</p>
<p>§ 3162.3-3(g)(9)</p>	<p>A certification signed by the operator that wellbore integrity was maintained throughout the operation, as required by paragraphs (d), (e)(1), and (e)(2) of this section.</p>	<p>The BLM would use the information to help protect public health and safety and obtain the operator’s self-certification that wellbore integrity was maintained throughout the operation.</p>
<p>§ 3162.3-3(g)(10)</p>	<p>The following information concerning the handling of recovered fluids: (i) The volume of fluid recovered during flow back, swabbing, or recovery from production facility vessels; (ii) The methods of handling the recovered fluids, including, but not limited to, pipeline requirements, holding pond use, re-use for other stimulation activities, or injection; and (iii) The disposal method of the recovered fluids, including, but not limited to, injection, hauling by truck, or transporting by pipeline. The disposal of fluids produced during the flow back from the</p>	<p>The BLM would use the information to help protect human health and safety and prevent the contamination of the environment. The BLM also needs to confirm that the disposal methods used are those that were approved and conform to the regulations.</p>

	well stimulation process must follow the requirements set out in Onshore Order Number 7, Disposal of Produced Water, Section III. B.	
§ 3162.3-3(g)(11)	If the actual operations deviate from the approved plan, the deviation(s) must be documented.	The BLM would use the information to maintain a record of any deviations of the operation from the approved plan in the event such information is needed to protect health and safety and prevent undue degradation of the environment.

Requesting a Variance

Proposed 43 CFR 3162.3-3(j) would encourage operators to use Form 3160-5 to request a variance from the requirements under proposed section 3162.3-3. Any request for a variance, whether filed on Form 3160-5 or not, would have to specifically identify the regulatory provision of this section for which the variance is being requested, explain the reason the variance is needed, and demonstrate how the operator would satisfy the objectives of the regulation for which the variance is being requested.

Estimated Annual Hour and Cost Burdens

The estimated annual hour and costs burdens of each aspect of this information collection are shown in the following table:

A. Type of Response	B. Number of Responses	C. Hours Per Response	D. Total Hours (Column B x Column C)
Sundry Notices and Reports on Wells /	1,700	8	13,600

Well Stimulation / Notice of Intent Sundry (43 CFR 3162.3-3) Form 3160-5			
Sundry Notices and Reports on Wells / Well Stimulation / Subsequent Report Sundry Notice (43 CFR 3162.3-3) Form 3160-5	1,700	8	13,600
Sundry Notices and Reports on Wells / Well Stimulation / Variance Request (43 CFR 3162.3-3) Form 3160-5	170	8	1,360
Totals	3,570		28,560

National Environmental Policy Act

The BLM has prepared an environmental assessment (EA) that concludes that the proposed rule would not constitute a major Federal action that may result in a significant adverse effect on the human environment under section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. 4332(2)(C). A detailed statement under NEPA would not be required if the proposed amendments were promulgated as regulations. The BLM has placed the EA and the draft Finding of No Significant Impact on file in the BLM Administrative Record at the address specified in the ADDRESSES section.

Data Quality Act

In developing this rule, we did not conduct or use a study, experiment, or survey requiring peer review under the Data Quality Act (Pub. L. 106–554).

Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

In accordance with Executive Order 13211, the BLM has determined that the proposed rule will not have substantial direct effects on the energy supply, distribution, or use, including a shortfall in supply or price increase. Please see the discussion earlier in this section of the preamble for a discussion of the impacts of the rule.

Clarity of the Regulations

Executive Order 12866 requires each agency to write regulations that are simple and easy to understand. We invite your comments on how to make these proposed regulations easier to understand, including answers to questions such as the following:

1. Are the requirements in the proposed regulations clearly stated?
2. Do the proposed regulations contain technical language or jargon that interferes with their clarity?
3. Does the format of the proposed regulations (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce their clarity?
4. Would the regulations be easier to understand if they were divided into more (but shorter) sections?
5. Is the description of the proposed regulations in the **SUPPLEMENTARY INFORMATION** section of this preamble helpful in understanding the proposed regulations? How could this description be more helpful in making the proposed regulations easier to understand?

Please send any comments you have on the clarity of the regulations to the addresses specified in the ADDRESSES section.

Authors

The principal authors of this rule are: Michael Worden of the BLM Washington Office; Nicholas Douglas of BLM Washington Office; Adrienne Brumley of the BLM New Mexico State Office; Donato Judice of the BLM Great Falls, Montana Oil and Gas Field Office, assisted by Ian Senio and Joe Berry of the BLM's Division of Regulatory Affairs and the Department of the Interior's Office of the Solicitor.

List of Subjects

43 CFR Part 3160

Administrative practice and procedure; Government contracts; Indians-lands; Mineral royalties; Oil and gas exploration; Penalties; Public lands-mineral resources; Reporting and recordkeeping requirements.

43 CFR Chapter II

For the reasons stated in the preamble, and under the authorities stated below, the Bureau of Land Management proposes to amend 43 CFR part 3160 as follows:

PART 3160 – ONSHORE OIL AND GAS OPERATIONS

1. The authorities citation for part 3160 is revised to read as follows:

Authority: 25 U.S.C. 396d and 2107; 30 U.S.C. 189, 306, 359 and 1751; 40 U.S.C. 4332, and 43 U.S.C. 1732(b), 1733, and 1740.

Subpart 3160—Onshore Oil and Gas Operations: General

§3160.0-3 [AMENDED]

2. In section 3160.0-3 add “the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.),” after “the Mineral Leasing Act for Acquired lands, as amended (30 U.S.C. 351-359),”.

3. Amend § 3160.0-5 by adding definitions of “annulus,” “bradenhead,” “proppant,” “stimulation fluid,” “usable water,” and “well stimulation” in alphabetical order and by removing the definition of “fresh water”:

The additions read as follows:

§ 3160.0-5 Definitions.

* * * * *

Annulus means the space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing; sometimes also called annular space.

* * * * *

Bradenhead means a heavy, flanged steel fitting connected to the first string of casing that allows suspension of intermediate and production strings of casing and supplies the means for the annulus to be sealed off.

* * * * *

Proppant means a granular substance (most commonly sand, sintered bauxite, or ceramic) that is carried in suspension by the fracturing fluid that serves to keep the cracks open when fracturing fluid is withdrawn after a hydraulic fracture treatment.

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Stimulation fluid means the liquid or gas, including any associated solids, used during a treatment of oil and gas wells, such as the water, chemicals, and proppants used in hydraulic fracturing.

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Usable water means generally those waters containing up to 10,000 ppm of total dissolved solids.

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Well stimulation means those activities conducted in an individual well bore designed to increase the flow of hydrocarbons from the rock formation to the well bore through modifying the permeability of the reservoir rock. Examples of well stimulation operations are acidizing and hydraulic fracturing.

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Subpart 3162—Requirements for Operating Rights Owners and Operators

4. Amend § 3162.3-2 by revising the first sentence of paragraph (a) and revising paragraph (b) to read as follows:

§ 3162.3-2 Subsequent well operations.

(a) A proposal for further well operations shall be submitted by the operator on Form 3160–5 for approval by the authorized officer prior to commencing operations to redrill, deepen, perform casing repairs, plug-back, alter casing, recomplete in a different interval, perform water shut off, commingling production between intervals and/or conversion to injection. * * *

(b) Unless additional surface disturbance is involved and if the operations conform to the standard of prudent operating practice, prior approval is not required for recompletion in the same interval; however, a subsequent report on these operations must be filed on Form 3160–5.

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5. Add a new § 3162.3-3 to read as follows:

§ 3162.3-3 Subsequent well operations; Well stimulation.

(a) This section applies to well stimulation activities. All other injection activities must comply with section 3162.3-2.

(b) When an Operator Must Submit Notification for Approval of Well Stimulation.

A proposal for well stimulation must be submitted by the operator and approved by BLM before commencement of operations. The proposal may be submitted in one of the following ways:

(i) For new wells, the operator may submit with its Application for Permit to Drill the information required in paragraph (c) of this section, except for the cement bond log required by paragraph (c)(2). The approved permit to drill will require submission and approval of the cement bond log required by paragraph (c)(2) prior to conducting well stimulation activities;

(ii) For wells permitted prior to the effective date of this section or for wells permitted after the effective date of this section, if the application for permit to drill a well did not include the information required in paragraph (c) of this section, the operator must submit a proposal for well stimulation operations on Form 3160-5 (Sundry Notices and Reports on Wells) as a Notice of Intent Sundry for approval by the authorized officer prior to well stimulation. If there is additional surface disturbance, the proposal must include a surface use plan of operations; and

(iii) If an operator has received BLM approval for well stimulation activities, it must submit a new Notice of Intent Sundry if either: (A) Well stimulation activities have not commenced within five years after the effective date of approval of the well stimulation activity; or (B) The operator has significant new information about the geology of the area, the stimulation operation or technology to be used, or the anticipated impacts of the stimulation activity to any resource.

(c) What the Notice of Intent Sundry Must Include. The authorized officer may prescribe that each proposal contain all or a portion of the information set forth in § 3162.3-1 of this title. The Notice of Intent Sundry must include the following:

- (1) The geological names, a geological description, and the proposed measured depth of the top and the bottom of the formation into which well stimulation fluids are to be injected;
- (2) The proposed measured depths (both top and bottom) of all occurrences of usable water and the cement bond logs (or another log acceptable to the authorized officer) proving that the occurrences of usable water have been isolated to protect them from contamination;

- (3) The proposed measured depth of perforations or the open-hole interval, the source and location(s) of the water used in the stimulation fluid or trade name of the base fluid (if other than water), type of proppants, and estimated pump pressures. Information concerning water supply, such as rivers, creeks, springs, lakes, ponds, and wells, which may be shown by quarter-quarter section on a map or plat, or which may be described in writing. It must also identify the source, access route, and transportation method for all water anticipated for use in stimulating the well;
- (4) A certification signed by the operator that the proposed treatment fluid complies with all applicable permitting and notice requirements as well as all applicable Federal, tribal, state, and local laws, rules, and regulations;
- (5) A detailed description of the proposed well stimulation design, including:
 - (i) The estimated total volume of fluid to be used;
 - (ii) The anticipated surface treating pressure range;
 - (iii) The maximum injection treating pressure; and
 - (iv) The estimated or calculated fracture length and fracture height;
- (6) The following information concerning the handling of recovered fluids:
 - (i) The estimated volume of fluid to be recovered during flow back, swabbing, and recovery from production facility vessels;

- (ii) The proposed methods of handling the recovered fluids, including, but not limited to, pit requirements, chemical composition of the fluid, pipeline requirements, holding pond use, re-use for other stimulation activities, or injection; and
 - (iii) The proposed disposal method of the recovered fluids, including, but not limited to, injection, hauling by truck, or transporting by pipeline.
- (7) The authorized officer may request additional information under this subsection prior to the approval of the Notice of Intent Sundry.
- (d) Mechanical Integrity Testing Prior to Well Stimulation. Prior to the well stimulation, the operator must perform a successful mechanical integrity test (MIT) of the casing.
- (1) If well stimulation through the casing is proposed, the casing must be tested to not less than the maximum anticipated treating pressure.
 - (2) If well stimulation through a fracturing string is proposed, the fracturing string must be inserted into a liner or run on a packer-set not less than 100 feet below the cement top of the production or intermediate casing. The fracturing string must be tested to not less than the maximum anticipated treating pressure minus the annulus pressure applied between the fracturing string and the production or intermediate casing.
 - (3) The MIT will be considered successful if the pressure applied holds for 30 minutes with no more than a 10 percent pressure loss.
- (e)(1) Monitoring and Recording During Well Stimulation. During the well stimulation operation, the operator must continuously monitor and record the annulus pressure at the bradenhead. If an intermediate casing has been set on the well that is being stimulated, the

pressure in the annulus between the intermediate casing and the production casing must also be continuously monitored and recorded. A continuous record of the annulus pressure during the well stimulation must be submitted with the required Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells) identified in paragraph (f) of this section.

(e)(2) If during the stimulation the annulus pressure increases by more than 500 pounds per square inch as compared to the pressure immediately preceding the stimulation, the operator must orally notify the authorized officer as soon as practicable, but no later than 24 hours following the incident. Within 15 days after the occurrence, the operator must submit a report containing all details pertaining to the incident, including corrective actions taken, as part of a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells).

(f) Storage of all recovered fluids must be in either tanks or lined pits. The authorized officer may require additional measures to protect the mineral resources, other natural resources, and environmental quality from the release of recovered fluids.

(g) Information that Must be Provided to the Authorized Officer After Completed Operations. The following information must be provided to the authorized officer in the required Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells) within 30 days after the operations are completed (see subpart 3160.0-9(c)(1)):

(1) The actual measured depth of perforations or the open-hole interval, the source and location(s) of the water used in the stimulation fluid or trade name of base fluid (if other than water), type of proppants, and actual pump pressures. Information concerning water supply, such as rivers, creeks, springs, lakes, ponds, and wells, which may be shown by quarter-quarter section on a map or plat, or which may be described in writing. It must

also identify the source, access route, and transportation method for all water used in stimulating the well;

- (2) The actual total volume of the fluid used;
- (3) The actual surface pressure and rate at the end of each fluid stage, and the actual flush volume, rate, and final pump pressure;
- (4) A report (table) that discloses all additives of the actual stimulation fluid, by additive trade name and purpose (such as, but not limited to, acid, biocide, breaker, brine, corrosion inhibitor, crosslinker, demulsifier, friction reducer, gel, iron control, oxygen scavenger, pH adjusting agent, proppant, scale inhibitor, or surfactant);
- (5) A report (table) that discloses the complete chemical makeup of all materials used in the actual stimulation fluid without regard to original source additive (see paragraph (f)(4) of this section). For each chemical, the operator must provide the Chemical Abstracts Service Registry Number as well as the percentage by mass. The percent mass value is the mass value for each component (Mc) divided by the value of the entire fluid mass (Mt) times 100. $(Mc/Mt)*100 = \text{percent value}$. The percent mass values should be for the entire stimulation operation, not for the individual stages.
- (6) The actual, estimated, or calculated fracture length and fracture height;
- (7) The Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells) may be completed in whole or in part, as applicable, by attaching the service contractor's job log or other report, so long as the information required in paragraphs (g)(1) through (g)(6) of this section is complete and readily apparent;

- (8) A certification signed by the operator that the treatment fluid used complied with all applicable permitting and notice requirements as well as all applicable Federal, tribal, state, and local laws, rules, and regulations;
- (9) A certification signed by the operator that wellbore integrity was maintained throughout the operation, as required by paragraphs (d), (e)(1), and (e)(2) of this section;
- (10) The following information concerning the handling of recovered fluids:
 - (i) The volume of fluid recovered during flow back, swabbing, or recovery from production facility vessels;
 - (ii) The methods of handling the recovered fluids, including, but not limited to, pipeline requirements, holding pond use, re-use for other stimulation activities, or injection; and
 - (iii) The disposal method of the recovered fluids, including, but not limited to, injection, hauling by truck, or transporting by pipeline. The disposal of fluids produced during the flow back from the well stimulation process must follow the requirements set out in Onshore Order Number 7, Disposal of Produced Water, Section III. B. (October 8, 1993, 58 FR 47354).

- (11) If the actual operations deviate from the approved plan, the deviation(s) must be documented and explained.
- (h) Identifying Information Claimed to be Exempt from Public Disclosure. At the time of submission of any information required under this section, operators must:
- (1) Specifically identify particular information claimed to be exempted from public disclosure by a Federal statute or regulation;
 - (2) Identify the Federal statute or regulation that prohibits the public disclosure of each piece of particular information, and explain in detail why the information is subject to the prohibition of the identified Federal statute or regulation; and
 - (3) Inform the BLM whether the particular information is available to the public through other means, such as disclosures required by state law.
- (i) Any information that is provided in accordance with this section for which the operator does not substantiate a reason for withholding under paragraph (h) of this section shall be deemed not to be protected by the Trade Secrets Act or other Federal law and shall be released to the public. If an operator identifies information as exempt from disclosure, the BLM may nonetheless release that information if it determines that the information is not prohibited from disclosure by Federal law, after providing the operator with no fewer than 10 business days notice of the BLM's determination.
- (j) Requesting a Variance from the Requirements of this Section. The operator may make a written request to the authorized officer to request a variance from the requirements under this section. The BLM encourages submission using a Sundry Notice (Form 3160-5, Sundry Notices and Reports on Wells).

- (1) A request for a variance must specifically identify the regulatory provision of this section for which the variance is being requested, explain the reason the variance is needed, and demonstrate how the operator will satisfy the objectives of the regulation for which the variance is being requested.
- (2) The authorized officer, after considering all relevant factors, may approve the variance, or approve it with one or more conditions of approval, only if the BLM determines that the proposed alternative meets or exceeds the objectives of the regulation for which the variance is being requested. The decision whether to grant or deny the variance request is entirely within the BLM's discretion.
- (3) A variance under this section does not constitute a variance to provisions of other regulations, laws, or orders.
- (4) Due to changes in Federal law, technology, regulation, BLM policy, field operations, noncompliance, or other reasons, the BLM reserves the right to rescind a variance or modify any conditions of approval. The authorized officer must provide a written justification if a variance is rescinded or a condition of approval is modified.

6. Amend § 3162.5-2 by revising the first sentence of paragraph (d) to read as follows:

§ 3162.5-2 Control of wells.

* * * * *

(d) Protection of usable water and other minerals. The operator shall isolate all usable water and other mineral-bearing formations and protect them from contamination. Tests and surveys of the

effectiveness of such measures shall be conducted by the operator using procedures and practices approved or prescribed by the authorized officer. * * *

Acting Assistant Secretary
Land and Minerals Management

Date